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ABSTRACT

A seminar was designed to present AIDS (Acquired Immune Deficiency Syndrome) related information to 52 college students enrolled in Psychology 101 courses at Essex Community College in Maryland. First, a questionnaire was administered to determine student knowledge about AIDS. The next part of the procedure was an intervention in the form of a class lecture/discussion seminar which focused on the correct answers to the questions and implications for personal behavior and responsibility. Pretesting and posttesting were done to evaluate the intervention. The study showed that students held more misconceptions about personal vulnerability and personal responsibility than about the societal consequences of AIDS. Posttesting with students who either had or had not attended the intervention seminar indicated that students who had attended the seminar performed 58% better than those who did not attend the seminar. Both groups knew more about the physiological manifestations of AIDS and its transmission than about personal vulnerability or the role individuals play in spreading the virus. The questionnaire is appended. Contains 54 references. (DB)

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EXPERIENCING AN EPIDEMIC: A SEMINAR DESIGNED TO EXPLORE THE SPREAD AND PREVENTION OF THE AIDS VIRUS

Curriculum and Program Planning

by

Joyce T. Rochlin, M.A.

Essex Community College, Maryland

Louis F. Weislogel, Ed.D.

Philadelphia Cluster

A Practicum presented to Nova University in Partial fulfillment of the requirements for the degree of Doctor of Education

Nova University

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ABSTRACT

The purpose of this study was to develop a seminar designed to present AIDS-related information to college students. The participants were 52 students enrolled in Psychology 101 courses at Essex Community College in Maryland. The data gathered for examination was pursued through a three-step method of investigation. The first part of this practicum was to assess the students' current knowledge about the AIDS virus. The next part of the procedure was intervention in the form of interactive class discussions. The final part of the study entailed a retest measure to assess the effects of the in-class intervention. The results of this study indicated that access to accurate information did increase the students' knowledge and had some effect on their attitudes about AIDS. For this study, more misconceptions were held about personal vulnerability and personal responsibility then about the societal consequences of AIDS. Suggestions for additional inquiries into students' misconceptions about the AIDS virus included presenting AIDS education in other formats and in other curricula. It was concluded that society is currently facing an epidemic of major proportions and that this disease will impact upon all of facets of higher education.

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Chapter 1

INTRODUCTION

The Problem for Investigation

The problem for investigation in this study was how much or how little college students know about the AIDS virus. This study was proposed because major gaps exist in our understanding of AIDS transmission. This lack of understanding exists even in the most enlightened areas with the most advanced programs.

In 1988, the Carnegie Council on Policy Studies in Higher Education suggested that barring a catastrophe, such as an epidemic, the number of people of college age can be predicted with reasonable accuracy. Based upon the current demographics of AIDS patients, this disease will have a major effect on these predictions and on the future of higher education.

The Purpose of Investigation

The purpose of this study was to develop a seminar designed to present AIDS-related information to college students. The objective of the program was an open-forum where students could explore their conceptions and misconceptions about the AIDS virus.

Although traditional programs aimed at AIDS education exist, they have not been overwhelmingly successful. The purpose of this study was to create a nontraditional environment in which the sharing information would be encouraged.

It has been shown that efforts to educate college students about AIDS have not been effective (Mangan, 1988). Most students do not perceive themselves as vulnerable and are not protecting themselves against the disease. It has also been suggested that more creative and personal AIDS education strategies should be employed. This study was an attempt to pursue these suggestions.

This practicum was proposed as the second step in designing a program to provide adequate and accurate information to college students. A previous design entailed the development of an instrument that would test students' knowledge about AIDS (Rochlin, 1990).

The intent of the second study was to continue this investigation through the use of the questionnaire with intervention techniques in an applied setting. The goal of both studies was to create an atmosphere through which interactive participation would be encouraged.

The Method of Investigation

In this study, the data gathered for examination was provided by students enrolled at Essex Community College in Maryland, and pursued through a three-step method of investigation. The first part of this practicum was to assess the students' current conceptions and misconceptions about the AIDS virus. The next part of the procedure was intervention in the form of an interactive question-and-answer discussion in class. The final part of the study entailed a retest measure to assess the effects of this in-class intervention.

The questions that this survey addressed were salient issues concerning the spread and prevention of the AIDS virus. These questions assessed the students' knowledge about the epidemiology of

the disease, its victims and its consequences. The questionnaire also contained several questions about the respondents' personal beliefs. These types of questions were included to investigate the attitudes and experiences of the respondents.

Chapter 2

BACKGROUND AND SIGNIFICANCE

The impetus for this study was based upon work done for the Curriculum and Program Planning Seminar. The content of this seminar emphasized the orderly processes through which information is transmitted and evaluated.

This study was an attempt to synthesize information about the AIDS virus, transmit this information through a non-biased forum, and assess the effects of this intervention. The primary emphasis of this study, however, was to design a program to correct students' misconceptions about the spread and prevention of AIDS.

Understanding the social consequences of the effect of AIDS and presenting accurate information about the disease is not limited to Essex Community College in Maryland. AIDS education should be an important priority for all institutions.

Coughlin (1989) has suggested that all disciplines should begin to think seriously about the social implications of this epidemic. To date, however, most investigations have been limited to biomedical research. Understanding the social consequences of the effect of AIDS is directly related to the etiologies presented in the Curriculum and Program Planning Seminar. The consequences of this disease impacts upon every facet of every institution in our educational system.

The Epidemic

In 1989, the Federal Government was expected to spend 260 million dollars on AIDS education (FNP Health Report, 1988). It was predicted

that a minimum average rate of increase for AIDS education would be thirty percent. By 1991, the state of California will spend 743 million dollars on AIDS education (Seidman, 1989). In 1989, an article in Pennsylvania Medicine, disclosed that the incidence of reported AIDS cases had exceeded 100,000.

It is now estimated there will be 365,000 AIDS patients in the United States by 1992 (Kean, 1989). To date, 250,000 people have died or are about to die because of AIDS. As Kean pointed out, this disease has already had an enormous effect on society. It should also be noted that statistical inferences are for people already infected with the AIDS virus and do not include HIV carriers.

It has also been reported that these cases are currently doubling about once every two years (Zeger, See & Diggle, 1989). Two other effects about the incidence of AIDS have also been shown. First, new AIDS cases do not conform to previous stereotypes. Next, several inconsistencies impact upon prediction (Pascal, 1989). Virological and statistical uncertainties and the demographics of its victims all act to confound empirical research.

The Centers for Disease Control has indicated that 2 out of every 1,000 college blood samples tested are infected with HIV, the virus that causes AIDS (Keeling, 1989.) Two disturbing thoughts are connected with this data. First, college campuses are already significantly infected. Next, most of these infections were preventable.

Of all known modes of transmission, the greatest progress has been made in preventing transmission through blood and blood products. Other body fluids, secretions and excretions may also been implicated in HIV

transmission (Selik and Curran, 1989). However, epidemiologic evidence has implicated only blood and semen in transmission.

These contradictions and the exponential growth rate of AIDS present interesting areas for speculation. One question for consideration would be, is the government providing accurate information through full disclosure about the spread of AIDS? Unless specifically pursuing this information, most individuals do not have access to the data contained in this study. Another question for consideration would be, what kind of information is the public receiving.

Although there have been a spread of programs to educate students, these attempts have been ambivalent, inadequate and ineffective (Mangan, 1988). Most programs are subject to the censorship of the communities they are trying to enlighten. By 1989, twenty-four states required AIDS education in public schools (FNP Health Report, 1989d). The programs now in existence place emphases on abstinence and avoiding intravenous drug use. These programs are doomed to failure.

Sexually active young adults will not abstain from sex and AIDS is a secondary concern for I.V. drug users. Instead of telling participants not to engage in risky behavior, they should be told how to protect themselves when they do (Weisman, et al., 1989). Programs such as this are available, but highly controversial.

For example, in Boston, Cardinal Law has urged Catholic parents not to allow their children to participate in AIDS education programs. For Cardinal Law, this type of curriculum admits there is permissive sexual behavior and increases the children's risk of getting AIDS (FNP Health Report, 1989c). Although many schools and political leaders

disagree with Cardinal Law's position, AIDS education has been particularly susceptible to moral and religious issues.

Students want to learn more about the AIDS virus (Helgerson & Petersen, 1988). Unfortunately our educational systems are not providing the kind of learning students want. Helgerson and Petersen found that students who had any knowledge about the disease, gathered this information from media sources rather than from educational programs.

How You Get It

In a recent survey, the Field Institute in San Francisco found that the respondents held rampant misconceptions about AIDS' transmission (FNP Health Report, 1989a). The impact of these results were, that in an area considered to offer some of the most sophisticated educational programs, most respondents still held stereotypical beliefs about AIDS' transmission. It is not surprising then that in areas where intimate issues are not addressed, considerable misconceptions surround the prevention and spread of AIDS.

Using a cross-sectional sample, Nader, et al. (1989), surveyed four theoretical constructs about the AIDS virus. The survey addressed students' agreement with health guidelines and their perceived norms for safe sexual practices. These students were also asked about their perceptions of personal vulnerability and personal responsibility in the spread and prevention of AIDS.

The Nader study disclosed an interesting paradox. The older, presumably more sexually active students perceived AIDS less as a

personal threat. This was supported by their lower ratings for safe sex practices. The lower socioeconomic groups had significantly poorer knowledge about the disease. This group also perceived AIDS less as a personal threat, were less concerned with the disease and felt that they had little control over its spread or prevention.

Several implications for education were suggested by this study. Nader, et al., pointed to the necessity for designing programs directed toward subculture peer groups. These investigators also felt that students should be educated about the reality of their vulnerability to AIDS. Perhaps most important, students should be taught specific skills to prevent AIDS infection and should be well aware of the parts they play in its transmission.

Wheeler (1990) found that many college students put their partners at risk by lying abut their sexual experiences. In Wheeler's study, 186 of the 422 sexually active respondents said that they had told a lie to have sex. Seventy-eight percent of the respondents indicated that they would never tell their partners about sexual infidelities.

Who Gets It

Major population changes have been predicted for the future of higher education (Fead, 1989; Hodgkinson, 1985). Today, two major changes are differential birthrates and dramatic increases in the number of children born outside of marriage. According to Hodgkinson, the rise of minority populations will be a powerful motivator prompting educational changes.

Hodgkinson's predictions, however, may not be realistic. While population predictions for higher education abound, most statistics are

based on the individuals most susceptible to the AIDS epidemic. Minorities have been especially hard-hit by HIV (DeAngelis, 1990).

Because of AIDS' association with marginalized groups, however, most people believe that AIDS is a lethal and transmissible disease only for at-risk groups. Although strong correlations exist between the spread of AIDS, ethnic minorities and intravenous drug users, the disease is by no means limited to these populations (Hopkins, 1987, Schilling, et al., 1989).

Holding onto the belief that these groups are the epidemic's primary targets grossly underestimates AIDS infiltration in society. AIDS can no longer be perceived as a disease related to homosexuality (Bakeman, Lumb & Smith, 1986; Mann, 1988). Today, most minority males with AIDS are heterosexual.

Sexual Behavior

Manning, Balsom, Barenberg and Moore (1989) found that students' beliefs about practicing safer sex depended upon their knowledge about the AIDS virus. Students who knew little about the disease perceived higher barriers to safe sex.

While most individuals understand the importance of protection, studies have shown that very few people are actually using protective measures to prevent sexually transmitted diseases (Sonnex, et al., 1989; Strader & Beaman, 1989). Negative attitudes toward the use of condoms have indicated the need for influencing normative beliefs to change behavior. These attitudes may be the single most important cause for concern in stopping the spread of AIDS.

These attitudes also support suggestions for redefining and

expanding the contributions that teachers can make (Basch, 1989). Specifically, educational programs must be directed toward the proper use of, and the differences between effective and ineffective protection (Weisman, et al., 1989).

Many investigators believe that to be effective, new programs must be developed (Biemiller; 1987, Mangan, 1988). Biemiller suggested that AIDS education should be aimed at changing behavior and should be repeated in different formats. Biemiller also pointed to an unfortunate paradox. The more effective a program is, the more controversial it tends to be. Effective programs admit there is sexual exploration by young people.

Personal Beliefs

The AIDS epidemic has been accompanied by intensely negative public reactions to persons presumed to be infected with the disease (Herek & Glunt, 1988). Herek and Glunt suggested that the development of an AIDS-related stigma may be an epidemic in itself. Furthermore, accurate knowledge about prevention and transmission of AIDS does not guarantee its application to risky behavior.

Bayer, Levine and Wolf (1986) have suggested that the greatest hope for stopping the spread of HIV infection, lies in the voluntary cooperation of those at risk. This cooperation would include voluntary testing. However, both voluntary and mandatory testing are sensitive issues influenced by psychological denial and societal stigma.

Tintinger and Simkins (1989) found that homosexual and bisexual college students were less supportive of mandatory testing than the heterosexual ones. Heterosexual respondents supported mandatory

testing for everyone, and homosexuals in particular. Tintinger and Simkins also pointed to growing and potentially militant public attitudes.

Attempts are now being made to reduce the favored status of AIDS patients and studies (Cordes, 1990). Many researchers feel that this money is being drained from other, equally important projects. Yet, many researchers feel that without an incentive, few would want to investigate a virus that is very dangerous to work with. It has also been suggested that the level of federal spending on specific diseases should compare to the costs each disease exacts from society.

Today, most people operate on a continuum of absolute paranoia to omnipotent naivete. In addition, for many who seemingly do understand AIDS' epidemiology, this knowledge is rooted in misconceptions (Manning, Balsom, Barenberg and Moore, 1989).

Sheehan, Lennon and McDevitt (1989) found that, when compared to other illness, AIDS patients were reacted to least positively. These researchers also found that these negative attitudes also affected the willingness of most people to interact with people afflicted with AIDS.

Personal feelings about compassion, responsibility and exposure are issues not always discussed openly. This effect was supported by Manning, Barenberg, Gallese and Rice (1989) who found that students preferred anonymous forums when being evaluated on their AIDS-related knowledge.

In the current study, an attempt was made to separate the respondents' personal attitudes from their factual knowledge about AIDS. This study was also designed as an anonymous survey in an attempt to retrieve honest and open answers from the respondents.

Theoretical Reasons for Review

In reviewing the literature of the uncertainties surrounding AIDS, several issues remain constant (Anderson, 1987; Taylor, 1989; Wellings, 1987). First, we are in the midst of an epidemic. Next, while not limited to, this disease is primarily directed toward minority populations and young people. Finally, the combination of this epidemic and its threat to the prospective student body will have a considerable effect on the demographics of higher education.

Although some studies have shown that students have a fairly high level of knowledge about the AIDS virus, most students do not consider it an epidemic or a very serious health threat (Sy, et al., 1989). Sy, et al., have suggested that students must be educated in the ways in which they will internalize and maintain risk prevention behaviors.

Several investigators have shown good results through pretest, intervention, post-test measures (Brown, Fritz & Barone, 1989; Dommeyer, et al., 1989; Miller & Downer, 1988). These studies were able to accomplish changes in tolerance and compassionate beliefs about people with AIDS. The results of these studies also indicated that the learning outcomes of intervention were retained. These studies lend further support to the ability of school-based educational programs as intervening systems.

Educational programs do increase knowledge and positive attitudes. However, they do not appear to have a positive effect on attitudes toward practicing preventive behaviors (Huszti, Clopton & Mason, 1989). It may just be that these programs are not addressing pragmatic issues (Lohrmann, 1988).

Since 1987, Columbia University (Biemiller, 1989) has presented an AIDS conference for people infected with AIDS or HIV. The organization's effectiveness has been shown through the services it offers and the information that it provides. Although intended primarily for an audience outside the university, the group is now seeing a significant part of its own population dealing with the disease.

The success of Colombia's program supports the use of multidisciplinary intervention strategies as suggested by Allensworth and Symons (1989). This practicum was an attempt to design such a program. As such, the questionnaire's merit was twofold. First, it was used as a discovery instrument to assess college students' current conceptions and misconceptions about the AIDS virus. Next, the questionnaire was used as part of a program for transmitting accurate information and stimulating discussion about the disease.

Chapter 3

PROCEDURES

The purpose of this practicum was to create an atmosphere through which interactive participation would be encouraged. For this study, a questionnaire entitled "What I Know About the AIDS Virus" (Rochlin, 1990), was used to examine students' knowledge about the spread and prevention of AIDS. The results of this questionnaire were compared through two administrations.

Initially, the questionnaire was used to obtain a baseline sample of the students' knowledge. Intervention entailed supplying the correct answers to all of the questions in class. After the in-class discussion, the same questionnaire was administered to assess the effects of this intervention.

Population and Selection Procedures

The questionnaires were presented to students enrolled in two Psychology 101 courses at Essex Community College in Maryland. Although these classes consisted of a total population of 72 students, only 52 participated in the survey. The difference between the actual population and the final sample was the result of two effects.

First, the students were told that the decision to participate in the survey was a voluntary one. The students were also told that this decision would have no impact upon their final grades. When given a choice, some students elected not to complete the questionnaire.

Next, because of drop-outs and absentees, not all students

participated in all surveys. This disparity imposed additional limitations on the sample size.

For the factual questions, if a student used more than one answer to a question, or did not answer a question, then that was considered an incorrect reply. For the opinion questions, if a student used more than one answer to a question or did not answer a question, than that question was omitted from the data. The results of these decisions are reflected in the differences between the amounts of answers to each question and the calculations based upon this total.

Data Collection

The participants were asked to complete the questionnaires during the regularly scheduled semester. The questionnaires were presented to the students as anonymous paper-and-pencil measures and were administered in class. The interval between the first questionnaire and lecture, and the second administration of the questionnaire was one week.

The final form of the questionnaire was the end-product of two previous questionnaires consisting of 52 statements. The final form of the questionnaire had been developed by using the questions with the lowest numbers of correct responses. These questions were selected based upon the assumption that if most of the students did not know the answer to a question, then obviously its discussion was worth pursuing.

This form of data collection was an attempt to construct a manageable instrument for classroom use. Therefore, omitting certain questions was an attempt at parsimony and was not intended to censor their use in any interactive discussions.

Questionnaire Administration and Intervention Procedures

Initial Survey

A questionnaire entitled "What I Know About the AIDS Virus" (Appendix A), had been developed to examine several issues about the spread and prevention of the this disease. This questionnaire was presented to the students as an inquiry about their knowledge about AIDS, and was completed in class.

Salient questions presented by other sources were used to develop the questionnaire. Some resources for the questions were the Field Institute, The National AIDS Awareness Test, the Federal Centers for Disease Control and the Surgeon General of the United States. The questionnaire was presented to the students as a paper-and-pencil measure in a true-or-false format. The questionnaire was also administered as an anonymous survey.

Within the questionnaire, the questions were separated to address the etiology and epidemiology of the disease. Several questions about the personal attitudes and experiences of the respondents were also included in the survey.

Reliability of the questionnaire had been established through correlation coefficients between test-retest measures and through the use of alternate forms of the test (Anastasi, 1982). Internal consistency had been established through correlations between the subtests, and between the subtests and the total scores.

Intervention

Intervention was pursued through two domains. First, the correct answers were given in class to each of the questions on the test. This

lecture stimulated considerable discussion about each question. For each question, the students volunteered their perceptions and generated additional discussion through other questions. Next, additional questions about personal vulnerability and responsibility were also addressed.

For each question, the students were told how poorly their replies compared to the correct answers. The students were also told the impact that these misconceptions could have on the spread and prevention of AIDS. After the correct answer to each question was given, the students were asked two new questions. These new questions centered around their concerns and about what they could do about the prevention and spread of AIDS. Providing the original answers and asking the new questions was an attempt to stimulate interactive discussion.

During the lecture, in-class discussion was not the rote delivery of material from the instructor to the students. The participants volunteered considerable information and the seminar was truly bidirectional.

Second Survey

One week after the in-class lecture, the same questionnaire was administered to examine the results of intervention. For the second administration, one question was added to the survey. On this questionnaire, the students were asked whether or not they had been present for the AIDS lecture given in class. This question was added for discovery purposes only and would not be included in any reproductions of the survey.

Reliability and Validity

Validity of the questionnaire had been established before its use in the present study. Administering the questionnaire at different intervals was an attempt to evaluate fluctuations over time. In addition, the answers of males and females were separated in an attempt to discriminate between, and hold gender effects constant.

Chi-Square comparisons as a function of administration were: first administration (males to females) $\underline{X}^2$ (3, $\underline{N}$ = 52) = .57, n.s., and second administration (males to females) $\underline{X}^2$ (3, $\underline{N}$ = 44) = 2.78, n.s.

When the surveys were separated, the data indicated that participants performed equally on each administration of the questionnaires. There were no significant differences as a function of gender in the responses on the first or second questionnaires.

This dependence would support the proposition that the surveys were measuring the same concepts on the students' knowledge about AIDS. The strength of these relationships indicated that the questionnaires were sufficiently reliable.

Pearson Product-Moment correlations as a function of gender were: first to second administrations (males) $\underline{r}(49) = .97$, $\underline{p}<.05$, and first to second administrations (females) $\underline{r}(47) = .95$, $\underline{p} < .05$.

Comparisons between administrations supported substantial differences as a result of the effects of intervention. The significance of these differences also supported the original intent of this study. The purpose of this study was to test the students' knowledge on different dimensions before and after intervention.

Because the fifth section of the survey required an opinion rather than a correct answer, it was not included in the above distributions. Based upon the students exposures to both questionnaires, the following differences were disclosed.

Table 1

Percentage Distributions of the Concepts Favored by the Students as a Function of Survey Administration

Question	Males First Adm.	Males Second Adm.	Females First Adm.	Females Second Adm.
Pay Own Medical Costs	38%	30%	42%	14%
Compulsory Testing	77%	83%	58%	67%
Uncomfortable Around AIDS' Patient	58%	78%	46%	48%
Would Not Want To Be Near AIDS Center	50%	61%	31%	48%
Physicians Should Be Required To Treat	58%	61%	62%	67%
Comfortable Talking About Sex	100%	100%	92%	100%
Know Someone With AIDS or HIV	20%		15%	
Have Not Been Tested	73%	87%	92%	90%

Percentage differences for this sample were based upon the 52 students who answered the first questionnaire and the 44 who answered the second questionnaire. When a student did not answer a question or used more than one answer to a question, it was not included in the data.

Table 2

Percentage Distributions of Prior Access to Information as a Function of Survey Administration and Gender

Source	First Administration		Second Administration	
	Males n=30	Females n=25	Males n=29	Females n=22
Parents	7%	8%	3%	9%
Friends	3%	4%	3%	5%
School	33%	24%	53%	32%
TV, Radio, Newspapers	57%	65%	41%	54%

Percentage distributions for the four sources cited above were based upon the students' self-selection of items. In this section, some students indicated more than one answer as their sources of information. This section was an attempt to indentify, not an attempt to single out sources. The slight percentage differences between the sources are the result of having included multiple answers in the distribution.

The presentation of Tables 1 and 2 were intended as descriptive analyses of the students' opinions rather than statistical ones. A narrative description of these results may be found in the interpretive section of this report.

Operational Definitions and Data Interpretation

Because the students' answers were collected anonymously, they were presumed to be an honest assessment of their current knowledge about the AIDS virus. For this study, misconceptions about the disease

were operationally defined as incorrect answers to the questions. Correct answers, therefore, were perceived to be the accurate information held by the students.

Statistical Analyses

Research evaluation for this sample was examined through two between-groups Analyses of Variance. First, the individual and interactive effects of the test-retest measure as a function of gender and questionnaire content were compared. Next, intervention was examined through the performances of the students who did and did not attend the in-class lecture. The dependent variable, for both designs, was the number of incorrect responses provided by the students. The minimum, acceptable level of statistical significance was .05.

Research Questions

In this study, the question for consideration was: could access to accurate information increase students' knowledge and influence attitudinal change. The intent of this study was to design an interactive program that would provide current, comprehensive information about AIDS. It was also an attempt to investigate the students' knowledge about the spread and prevention of the AIDS virus and to make inferences from the data collected.

Assumptions and Limitations

It was assumed that because the baseline information was gathered anonymously, most students' replies were honest ones. Although the participants were not matched on any level, it was also assumed that

these students were a current sample of the daytime population at Essex Community College.

However, any generalization about the information collected can only be directed to the sample surveyed. As a result, this sample may not accurately represent the conceptions of students attending other colleges or attending college at nontraditional times.

Furthermore, while the students may have been willing to respond to the questionnaires, no assurances can be given that their answers were other than good or bad guesses. Although temporal and content interventions were attempted, experience and fortuitous factors should be considered.

Overall, the answers to the surveys were as diversified as the students who were surveyed. Few participants did very poorly or particularly well on the first administration of the questionnaire.

The intent of this study was to provide some insight into students' conceptions and misconceptions about the AIDS virus. However, because of the restrictive nature of the data being examined, its reliability and validity will always be questionable.

The literature has shown that the inconsistencies surrounding the AIDS virus defy mathematical models and have confounded empirical research. At best, predictions and generalizations about the disease are only theoretical models.

Chapter 4

RESULTS

In this study, although the students were endowed with a considerable amount of accurate information about the AIDS virus, they were also considerably misinformed. A presentation of the results of this study is displayed through descriptive tables and narrative form. These distributions were based upon the students' incorrect answers to the questions.

Descriptive Tables and Analyses of the Data

Table 3

Analysis of Variance of Response Rates as a Function of Times of Administration, Gender and the Content of the Questionnaires

Source	SS	df	MS	F
Administration	122	1	122.00	104.27**
Gender	0	1	0.00	0.00
Content	76	3	25.33	21.65**
Administration x Gender	85	1	85.00	72.65**
Administration x Content	9	3	3.00	2.56
Gender x Content	131	3	43.67	37.32**
Adm. x Gender x Content	9	3	3.00	2.56
Error	430	368	1.17	

** $p < .01$

Examination of Table 3 indicates that both the time of administration and the content of the questionnaires had a significant effect on test performance. There were no significant differences in the performances of males or females as a function of when the questionnaires were administered or what they contained.

Table 4

Mean Distributions of Response Rates as a Function of Times of Administration, Gender and the Content of the Questionnaires

Source	First Adm. Males	First Adm. Females	Second Adm. Males	Second Adm. Females	Total
The Epidemic	1.12	.92	.13	.29	(.65)
How You Get It	1.69	1.73	.78	.27	(1.24)
Who Gets It	2.54	2.30	1.17	.76	(1.76)
Sexual Behavior	2.23	2.27	1.09	.95	(1.68)
Total	(1.89)	(1.81)	(.79)	(.64)	
Grand Mean					(1.33)
	First Adm. (1.85)		Second Adm. (.72)		
	Males (1.28)		Females (1.39)		

Examination of Table 4 indicates fewer incorrect replies the second time that the questionnaire was administered. Within administrations, the students had considerably more knowledge about the epidemiology than the etiology of the AIDS virus. Across conditions, females were somewhat better informed than males.

Table 5

Analysis of Variance of Response Rates for the Second Administration of the Questionnaire as a Function of Intervention

Source	SS	df	MS	F
Attendance	5	1	5.00	7.25**
Content	21	3	7.00	10.14**
Attendance x Content	27	3	9.00	13.04**
Error	130	188	.69	

** $p < .01$

Inspection of Table 5 indicates that whether or not a student attended the in-class lecture had a significant effect on performance. These results also indicate that the content of the questionnaires significantly effected on the respondents' replies.

Table 6

Mean Distributions of Response Rates for the Second Administration of the Questionnaire as a Function Intervention

Source	Did Attend	Did Not Attend	Total
The Epidemic	.20	.60	(.24)
How You Get It	.68	1.20	(.73)
Who Gets It	.98	1.80	(1.06)
Sexual Behavior	1.02	1.40	(1.06)
Total	(.72)	(1.25)	
Grand Mean			(.78)

Comparisons between the questionnaires for the students who did and who did not attend the in-class lecture indicate considerable benefits for this type of intervention. Overall, the students who did attend the lecture performed fifty-eight percent better than those who did not attend the lecture. Both groups knew more about the physiological manifestations of AIDS and its transmission then about their vulnerability to it or the parts they played in spreading it.

Chapter 5

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this study was to develop a seminar designed to present AIDS-related information to college students. Its objective was an open forum where the students could explore their conceptions and misconceptions about the spread and prevention of AIDS.

Although a questionnaire had been developed to address salient issues about the AIDS virus, it should not be interpreted as being all things to all people. The impact of this epidemic is such that the misconceptions of one student could have disastrous consequences on anyone with whom he or she has an intimate relationship. Therefore, new issues arising as a result of classroom discussions may be more important than the concepts considered here.

Interpretation of the Data

The results of this study indicated that, for the participants sampled, more misconceptions were held about how one gets AIDS then about its impact on society. Although the conceptions of some of the students were accurate, this should not negate the impact of their considerable misconceptions about AIDS.

Access to accurate information did increase the students' knowledge about AIDS. Although the in-class discussions had some effect on attitudinal change, these changes were not dramatic for either sex.

There were no significant differences between the replies of males or females. However, both within-group comparisons and between-group comparisons indicted that the participants performed significantly

better as a result of the in-class lecture. Significant differences were also demonstrated as a function of the content of the questionnaires. When separated, the five domains surveyed by the questionnaires provided some interesting replies.

The Epidemic

First Administration 15%, Second Administration, 3% incorrect. The questions in this subsection requested information about the physiological manifestations of AIDS. The students were particularly naive about the number of people infected, the ability to discern this infection and the costs incurred as a result of infection. Almost every student believed that the government was not being completely honest with the public about the issues surrounding AIDS.

How You Get It

First Administration 24%, Second Administration 10% incorrect. The students also held many misconceptions about the etiology of the AIDS virus. Their initial beliefs included parasitic as well as bacteriological causes for the disease. For the first administration, the students also considered AIDS more contagious than both measles and the common cold. Although AIDS is highly contagious through risky sexual behavior and the blood of infected patients, it is not more contagious than either measles or the common cold.

Who Gets It

First Administration 35%, Second Administration 14% incorrect. The questions about the epidemiology of the disease disclosed several inconsistent answers on the first administration of the questionnaire.

The students believed that the spread of AIDS was specifically related to homosexuals and ethnic populations. The students also believed that people who gave blood or got blood could get AIDS. While people who get blood may be susceptible to the disease, it has no impact upon people who give blood.

Most of the students believed that hospitals were required to protect their employees against infection and that cases of infection have been linked to mosquito bites. Both of these concepts are false. At present, there are no hard and fast rules for the protection of health care workers. The AIDS virus is not transmitted through a mosquito's salivary glands like other diseases such as malaria or yellow fever.

Support for the effects of intervention were demonstrated by the students' replies on the second questionnaire. By the second time that the questionnaire was administered, these misconceptions were reduced by forty-seven percent.

Sexual Behavior

First Administration 32%, Second Administration 15% incorrect. Initially, the largest number of incorrect answers fell within this subsection. Over fifty percent of the student believed that they could get AIDS more easily through vaginal than anal sex. The students knew little about the differences in protective measures for the prevention of AIDS. They also ignored the consequences of their partner's sexual experiences even though they believed that they could get AIDS through a kiss.

While the data here suggests significant learning outcomes, these

differences should not be considered successful internalization of the material presented in the lectures. It is at this level where the participants are most vulnerable to the disease and bear the greatest responsibility for its spread.

AIDS is a lethal disease and while percentage changes are laudable, any misconceptions about sexual behavior may have terminal consequences for the participants or their partners. For this investigator, in this subsection, the only acceptable number of incorrect answers for the second administration would have been zero.

Personal Beliefs

On a personal level, although there were considerable attitudinal changes between administrations, this sample's compassion for others and responsibly for themselves left a lot to be desired. For the first administration, the students adamantly believed that infected patients should pay their own costs for treatment. They also indicated that they would feel very uncomfortable around someone who had AIDS on both questionnaires. For both administrations, the students indicated that they felt comfortable discussing sex with their partners.

Before the second survey, most of the students' indicated that their knowledge about AIDS had been obtained through media sources (65%). Eighty percent of the males and sixty percent of the females believed in compulsory AIDS testing. Eighty percent of the males and ninety-one percent of the females had not been tested for HIV. Based upon their initial replies, nineteen percent of the males and fifteen percent of the females knew someone who had AIDS or HIV, the virus that causes it.

Research Implications

The identification of students' misconceptions about AIDS should be of concern to all institutions. The results of this study indicated that many students held erroneous beliefs about the spread and prevention of AIDS. The results here also indicated that these misconceptions could be corrected through educational intervention.

The students demonstrated little responsibility for the parts they might play in the spread of AIDS by their failure to be tested for the disease. This lack of testing would also support their omnipotent attitudes toward the possibilities of infection.

Because AIDS is primarily a problem among young people, higher education is particularly vulnerable to its effects. Keeling (1989) suggested that higher education had the opportunity to protect and preserve the health of its students. As such, teachers have a responsibility to educate themselves and their students about the AIDS virus (Fetter, 1989).

However, although individuals may possess accurate information, is no guarantee that positive behavioral changes will occur. As suggested by Biemiller and Mangan, this information should be reinforced through repetition and through new formats.

Attempts at public education have met with extensive delays in getting AIDS information to all American households (FNP Health Report, 1989b). Although creative commercials have been produced, most are shown between 11 p.m. and 7 a.m. Moreover, many stations refuse to run these commercials because they are sexually explicit or pertain to controversial issues (FNP Health Report, 1989b).

Ross, Freedman and Brew (1989) found that gay organizations and the media were the most common source of information about AIDS. Support for reliance on non-educationally affiliated sources was demonstrated by the responses received from the students sampled at Essex Community College.

Other investigators have suggested that interventions designed to change behavior should be tailored for specific groups (Klein, et al., 1987; LaTour & Pitts, 1989). LaTour and Pitts found that the cognitive impressions of college students varied according to the emphasis placed on the deadly consequences of AIDS. These findings have strategic implications for the presentation of AIDS-related information.

In the current study, no optimistic views, other than preventive measures, were presented in the class lecture. While a pessimistic presentation could be deemed one-sided or limiting, it held the students' interests and required them to acknowledge that certain behaviors are potentially risky. Based upon LaTour an Pitts' findings, the axiom that it is better to be safe than sorry, was applied to the in-class discussion.

Recommendations for Further Investigation

If, as disclosed by the statistical differences in this study, college students know shamefully little about AIDS, then two other questions must be considered. Why do these students know so little, and how can higher education help get this information to them?

In this study, the initial laissez faire attitudes and misconceptions about AIDS would suggest that current educational formats are not working. Further research should be encouraged through

the administration of the questionnaire in situations other than college settings. Other formats to provide information about the disease should also be developed.

Potential Impact

We are currently facing an epidemic of major proportions, and its influences on higher education cannot be denied. While population predictions are being made for future numbers of college age individuals, no assumptions can be made that they will attend college.

Although many reasons exist for not going to college, for those infected with AIDS, attaining this goal may be an impossibility. The future of higher education faces a major challenge. Those individuals upon which its predictions are based are the ones most susceptible to the AIDS epidemic. As such, it is the responsibility of all systems to educate for prevention and protection.

If, as the literature suggests, the incidence of AIDS is stronger among minority populations, then their offspring will suffer its consequences. Yet, the literature also predicts a majority of minorities in the next generation of higher education. The inconsistencies here should be of major concern to all educators.

Many implications for the future of higher education may be suggested through this investigation. If enrollment trends will change, then higher education must be prepared to deal with the nature and effects of these changes. If current predictions about the exponential growth rate of AIDS are accurate, then the nature of these changes may be more insidious than their effects. With the emergence of a new influence on higher education, new issues must be considered.

First, educators will be interacting with considerably more people incubating or infected with the disease. Next, current assumptions about the reasons for attendance may warrant review. It would be highly unlikely that an individual suffering from a terminal illness would be attending college for the same reasons as a student with a bright future. Finally, accurate education about AIDS must be included in all college curricula, whether or not this information is deemed controversial.

AIDS research has largely ignored peripheral participants and prospective patients. The domains surveyed in the practicum were an attempt to consider these new issues. This study was an attempt to investigate and consolidate students' current knowledge about the AIDS virus, the implications of discordant predictions, and the responsibility of higher education to its students.

The students' responses to the last question on the second survey may shed some light on these questions. Few students had acquired their AIDS-related information from educational sources. The students' erroneous beliefs did change as a result of intervention. However, knowing the right thing to do on a paper-and-pencil measure may not be the same as knowing the right thing to do in the throes of passion.

The results of this study were also contrary to other investigative reports about anonymity. When interactive discussion was encouraged, the students willingly shared their concerns about infection to themselves and their responsibilities to others. Although the students wanted to learn more about AIDS, few had been given this opportunity.

The basic tenet of higher education is preparation for the future. Even when controversial, these systems cannot afford to abdicate their responsibility to present accurate information. Lack of information about the AIDS epidemic threatens the students who move through these institutions and, as such, the institutions through which they move.

APPENDIX A

SAMPLE OF THE QUESTIONNAIRE

WHAT I KNOW ABOUT THE AIDS VIRUS

Please Answer True or False to Each of the Following Questions

YOUR SEX_____ YOUR AGE_____

The Epidemic

1.	The number of AIDS carriers in the U.S. is available.	T	F
2.	The symptoms of people with AIDS are always the same.	T	F
3.	Women have a greater natural immunity to AIDS.	T	F
4.	A person who has AIDS can look well and feel healthy.	T	F
5.	Average costs for an AIDS patient exceed $50,000 a year.	T	F
6.	It can take five years or more for an AIDS virus carrier to develop the disease.	T	F
7.	I do not believe that the government has been completely honest about issues surrounding AIDS.	T	F

How You Get It

8.	AIDS is caused by a parasite.	T	F
9.	AIDS is more contagious than the common cold.	T	F
10.	You can get AIDS from a tattoo needle.	T	F
11.	The AIDS virus thrives in heroin.	T	F
12	AIDS is caused by bacteria.	T	F
13.	AIDS is more contagious than measles.	T	F
14.	It is my responsibility to find out about my partner's past sexual experiences.	T	F

Who Gets It

15.	Hospitals are required to protect health care workers.	T	F
16.	People who get blood can get AIDS.	T	F
17.	Most homosexuals have AIDS.	T	F
18.	Blacks and Hispanics are more susceptible to AIDS.	T	F
19.	People have been infected with AIDS by mosquito bites.	T	F
20.	People who give blood can get AIDS.	T	F
21.	A recent negative blood test is proof that a person is not an AIDS carrier.	T	F

Sexual Behavior

22.	You can get AIDS more easily through anal sex than vaginal sex.	T	F
23.	A natural condom is the best device to use for protection.	T	F
24.	You can get AIDS through sex even though you are only having sex with one partner.	T	F
25.	You can get AIDS from kissing.	T	F
26.	Sex with protection is a sure way to prevent getting AIDS.	T	F
27.	A latex condom is the best device to use for protection.	T	F
28.	Spermicidal gel used with a condom adds protection against AIDS.	T	F

My Personal Beliefs

29. People who have AIDS should pay their own medical costs. T F
30. I favor of compulsory AIDS testing for everyone in the United States. T F
31. I would feel very uncomfortable about being around someone who has AIDS. T F
32. An AIDS center in my neighborhood would upset me. T F
33. Doctors and dentists should be required to treat AIDS patients. T F
34. When I know someone well enough I feel comfortable talking about sex. T F
35. I know someone with AIDS or HIV, the virus that causes it. T F
36. I have NOT BEEN tested for AIDS. T F

37. Most of the information that I have about AIDS has come from
    A. My Parents
    B. My Friends
    C. School
    D. Television, Radio or Newspapers

38. I was _____ was not_____ present in class for the lecture on AIDS.

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